UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
ENVIRONMENTAL CLEANUP

August 21, 2017

Mr. Bob Wyatt *sent via email only*
NW Natural
220 NW 2nd Avenue
Portland, Oregon 97209

Mr. Myron Burr
Siltronic Corporation
7200 NW Front Avenue, M/S 20
Portland, Oregon 97210-3676

Re: NW Natural Proposed Summer 2017 Initial Pre-Remedial Design Data Gaps Field Sampling – Gasco Sediments Site

Dear Sirs:

This letter serves as a response to the *NW Natural Proposed Summer 2017 Initial Pre-Remedial Design Data Gaps Field Sampling – Gasco Sediments Site* memorandum (Data Gaps memo) dated August 7, 2017 for the Gasco Sediments Site which was prepared by Anchor QEA, LLC on behalf of NW Natural. The U.S. Environmental Protection Agency's (EPA's) comments on the Data Gaps memo are attached. Comments on the Data Gaps memo were also received from the Oregon Department of Environmental Quality (DEQ) and are attached in their entirety. EPA concurs with the DEQ comments and asks that they also be addressed.

The EPA acknowledges the proposed work is an initial data collection event timed to take advantage of annual low surface water elevations in the Willamette River and to help inform the more comprehensive data gaps sampling event that will be proposed in the *Draft Pre-Remedial Design Data Gaps Work Plan and Sampling and Analysis Plan* expected to be submitted to EPA in late 2017 or early 2018. EPA's approval of the proposed work is pending satisfactory response to the attached comments as well as resolution to comments on the project Health and Safety Plans pertaining to diver and non-diver related activities.

Please let me know if you would like to discuss this letter/attached comments, or have any questions or concerns at (206) 553-1220 or via email at sheldrake.sean@epa.gov.
Sincerely,

Sincerely,

Sean Sheldrake, RPM

Cc: Dana Bayuk, DEQ *via email only*

EPA Comments on NW Natural Proposed Summer 2017 Initial Pre-Remedial Design Data Gaps Field Sampling - Gasco Sediments Site Memorandum
Dated August 7, 2017

Comments dated August 21, 2017

The following are EPA comments on the *NW Natural Proposed Summer 2017 Initial Pre-Remedial Design Data Gaps Field Sampling* memorandum (Data Gaps memo), dated August 7, 2017 and prepared by Anchor QEA, LLC for NW Natural. The Data Gaps memo discuses NW Natural's proposal for an initial data collection event taking place in late August and early September 2017 to take advantage of annual low Willamette River water surface water elevations. This initial event is expected to help inform the more comprehensive *Draft Pre-Remedial Design Data Gaps Work Plan and Sampling and Analysis Plan* which will include additional sampling locations and media to support a broader set of data objectives. EPA has the following comments related to this document.

General Comments

1. The Data Gaps memo should be clearer as to the intended purpose of the proposed sampling locations. Page 2 of the Data Gaps memo states that "The locations were determined based on the total number of available seepage meters (six) from CMA, co-location with four offshore locations previously sampled by LWG and NW Natural, areas that showed a large range of positive/negative fluxes prior to installation of the HC&C system, and spatial coverage of the offshore area of the Site that includes both capping and dredging remedial technologies identified in the Record of Decision". EPA notes that five of the six proposed locations (GRD-02, GRD-03, GRD-04, GRD-05 and GRD-06) are in areas planned for dredging under the Selected Remedy presented in the January 2017 Record of Decision (ROD). The relevance of the selected sample location to the capping demonstration evaluation presented in the July 2017 draft *Pre-Remedial Basis of Design Technical Evaluations Work Plan* (currently under review by EPA, DEQ, and stakeholders) should be discussed.

2. Consistent with the April 4, 2017 EPA letter to NW Natural and Siltronic Corporation, it is important to document seepage conditions near the periphery of the hydraulic control and containment (HC&C) system capture zone based on the results documented in the *Gasco Groundwater Modelling Report* dated February 17, 2017. Under the proposed sampling scheme, five of the proposed seepage meter locations are located well within the modelled capture area presented in the model report while GRD-06 is located several hundred feet from the upstream boundary of the modelled capture area. NW Natural's response to Comment #1 will be helpful in clarifying the rationale for the placement of the six seepage meters; however, EPA requests that a minimum of two seepage meter locations be sited to address the April 4th request for evaluating seepage near the periphery of HC&C system capture zone in proposed capping areas. A response to EPA's April 4th letter should also be incorporated in the *Draft Pre-Remedial Design Data Gaps Work Plan and Sampling and Analysis Plan* to be submitted to EPA in accordance with the EPA-approved Gasco Sediments Site revised Schedule of Project Deliverables.

3. A comparison of Table 2 and Table 4 indicates that pesticides, dioxins/furans, and PCBs are being analyzed in surface sediment samples but not in TZW and near-surface water samples. Surface sediment, TZW and near-surface water samples should all be analyzed for the entire list of contaminants provided in Table 17 of the ROD. Additionally, key Gasco COCs not included in Table 17 of the ROD should also be analyzed in the surface sediments, TZW and near-surface samples being evaluated. Revise the text and tables accordingly.

4. Passing vessels have been shown to influence certain types of seepage meters. If this is a concern with the ultrasonic seepage meters then appropriate precautions should be taken or, at the very least, thorough notes and AIS ship logs (large commercial vessels all have automatic identification system transmitters that can be tracked online) should be recorded of possibly interfering vessel wakes encountered during seepage meter deployment.

Specific Comments

5. Page 1, second paragraph. The text references EPA's request in the letter dated April 4, 2017. For ease of comprehension the following text from EPA's letter should be quoted in this paragraph (perhaps as a footnote): "EPA considers the primary lines of evidence to demonstrate off-shore seepage control to be empirical data to corroborate the groundwater model results and give confidence to model predictions. Such empirical lines of evidence should include measurement of vertical upwelling at the sediment-water interface in proposed capping areas using seepage meters and/or piezometers. However, groundwater upwelling is not the only factor influencing sediment cap performance at the Gasco Site. Site specific parameters, contaminant characteristics, and cap material properties all play a crucial role in cap design. Passive sampling devices measuring porewater concentrations of contaminants in the sediments at proposed capping locations would provide further evidence of seepage control."

6. Page 2, second paragraph. The text states that: "The proposed sampling methodologies for each of these media will be consistent with the methodologies previously executed at the Site pursuant to EPA-approved quality assurance project plans (QAPPs) and field sampling plans (FSPs)." Lessons learned from the previously executed methodologies should be carefully examined for this sampling event. Some examples of lessons learned are discussed in Sections 2.2.2 and 2.2.3 of the *Portland Harbor RI/FS Round 2 Groundwater Pathway Assessment Sampling and Analysis Plan – Attachment 1 Field Sampling Plan Groundwater Plume Discharge Mapping* for Trident Probe and UltraSeep respectively.

7. Page 2, Offshore Groundwater Seepage Meters, 2nd paragraph, last sentence. The text states that: "Groundwater seepage data from additional locations in the nearshore area of the Site should also be collected during the winter months with higher river surface elevations." Revise the text to state that this subsequent sampling should utilize the same or analogous techniques as the current sampling techniques.

8. Page 4, Surface Sediment, 2nd paragraph, last sentence. The text states that: "In addition, a few additional analyses will be performed to assist with polycyclic aromatic hydrocarbon (PAH) source identification." The proposed approaches for source identification should be provided in the text.

9. Table 5. Like PCB collection, surface sediment samples to be analyzed for PAHs should be collected in amber glass containers because PAHs are photo-degradable.

10. Table 9 does not include acceptance criteria for field blanks. As established in Table A-6 of the *Final Project Area Identification Report and Data Gaps QAPP* prepared by Anchor QEA in 2010, one field blank per sampling equipment should be included with the same acceptance criteria as the trip blank. Revise the document accordingly.

DEQ Comments on NW Natural Proposed Summer 2017 Initial Pre-Remedial Design Data Gaps Field Sampling - Gasco Sediments Site Memorandum

Dated August 7, 2017

Comments dated August 18, 2017

The Oregon Department of Environmental Quality (DEQ) reviewed the "NW Natural Proposed Summer 2017 Initial Pre-Remedial Design Data Gaps Field Sampling – Gasco Sediments Site" technical memorandum dated August 7, 2017. The memorandum provides NW Natural's proposal to conduct an initial in-water data collection event to support planning for more comprehensive pre-design data gaps sampling work to follow. The scope of work includes placing six seepage meters in the river to measure groundwater seepage flux in shallow sediments, and collect co-located shallow sediment, TZW, and surface water samples for chemical analyses.

DEQ's comments identify information and data collection needs that we consider necessary for completing the sampling plan and achieving the goals of the work, or for inclusion in future pre-design data gaps sampling and analytical work. Note that DEQ comments 2.a. and 2.b. include recommendations to expand the proposed sampling and analytical program to include:

- All ROD Table 17 constituents to provide a basis for making decisions regarding future comprehensive data gaps sampling;
- Key Gasco COC not identified in the ROD Table 17 to account for, and integrate relevant site-specific data into the sediment remedy planning and design process; and
- Reporting of all parameters included in the laboratory methods referenced, including but not limited to complete reporting under the EPA Method 8260D-SIM and EPA Method 8260C.

Going forward DEQ anticipates that key Gasco COC that are not included in ROD Table 17, will be identified and included in future comprehensive pre-design data gaps sampling work.

DEQ's complete comments are provided below.

1. **Page 1, paragraph 2.** NW Natural indicates that the August-September time period represents the period of "…highest potential seepage fluxes." DEQ agrees that it is important to collect seepage and TZW data representative of seasonal conditions. However it is not currently known, that on an annual basis the highest seepage flux occurs during late summer and early fall, as indicated by Anchor. NW Natural should evaluate the available seepage flux data and the magnitude of hydraulic gradients versus time (pre- and post-operation of the HC&C system) to estimate the timing of future pre-design seepage flux measurements and TZW sampling events.

2. **Page 2, paragraph 1.** The memo states that the proposed sampling will, "...further inform the more comprehensive data gaps sampling plan that will be proposed in the Draft Pre-Remedial Design Data Gaps Work Plan and Sampling and Analysis Plan, and support forthcoming remedial design

evaluations presented in the Work Plan". DEQ does not agree the initial sampling approach achieves these goals. Specific data collection objectives and data uses are not included in the document. This information should be described in the text with the applicable remedial design evaluations detailed. If these data are intended to evaluate groundwater flux as a part of the Gasco sediment remedy, the proposed sampling suite should be consistent with applicable remedial design criteria and performance standards to be established in the Basis of Design document currently under review. Furthermore, sample analysis should be inclusive to provide a basis for decision making going forward. Based on this information, DEQ requests the following revisions to tables 2 and 4.

a. Table 2. The proposed analytical suite for the TZW and near-bottom surface water consists of PAHs, VOCs, and conventional parameters. This suite includes all of the PAHs specified in EPA's ROD Table 17 cleanup values for groundwater and surface water, but excludes two of the VOCs; chlorbenzene and tetrachloroethene (PCE). These VOCs should be reported for consistency with EPA's ROD Table 17. Other excluded Table 17 analytes include metals, PCB congeners, BEHP, dioxin/furans, pesticides, VOCs, phenols, and TPH. Given NW Natural anticipates optimum conditions for collecting seepage data (i.e., collect TZW samples representative of seasonally high discharges to the river), analysis of TZW and surface water samples should include:
   - All ROD Table 17 constituents to provide a basis for making decisions regarding future comprehensive data gaps sampling; and
   - Key Gasco COC not identified in the ROD Table 17 (e.g., Volatile Petroleum Hydrocarbons [VPH], Extractable Petroleum Hydrocarbons [EPH], aluminum) to account for, and integrate relevant site-specific data into the sediment remedy planning and design process.

   Furthermore, the analyte list shown in Table 2 suggests that NW Natural intends to report data for a subset of the chemicals included in the referenced laboratory analytical methods (e.g., EPA Method 8270D-SIM, EPA Method 8260C). DEQ requests that the full list laboratory results be provided for completeness.

b. Table 4. The proposed analytical suite for surface sediments includes EPA's remedial action level (RAL) COCs (PAHs, pesticides, dioxin/furans, and PCB congeners) and VOCs. Excluded Table 17 analytes include metals, BEHP, γ-BHC (Lindane), Aldrin, Chlordane, TPH-Diesel. Although delineation of sediment management areas will be based on the RAL COCs as specified in the ROD, the site-specific cleanup levels have not been established. EPA may require that design criteria and performance standards for the Gasco sediment site be based on achieving the cleanup levels established in Table 17 of the ROD rather than achieving an average sediment concentration below the RALs (as proposed in Section 4.2.3.2 Chemical Isolation, page 19, bullet 1 of the Draft Basis of Design). Based on this information, DEQ recommends that sediment analysis include all ROD Table 17 constituents, and key Gasco uplands COC not identified in the ROD Table 17.

   The analyte list shown in Table 4 indicates that NW Natural will report data associated with a subset of the chemicals included in the referenced laboratory analytical methods (e.g., EPA Method 8270D-SIM, EPA Method 8260C). DEQ requests that the full list laboratory results be provided for completeness.

3. **Offshore Groundwater Seepage Meters, 2nd paragraph.** Contrary to NW Natural's conclusion that the HC&C system provides offshore seepage control, DEQ concludes that fine-grained sediments, including the Upper Alluvium Silt, and/or heavily contaminated sediments, potentially hydraulically separate shallow river sediments from the Upper Alluvium water-bearing zone (WBZ). The lateral and vertical extent of these low permeability materials is currently unknown. Consequently, the

capacity for the HC&C system to achieve groundwater seepage control is considered highly uncertain. As indicated in EPA's April 7, 2017 letter, collection of empirical data demonstrating seepage control in shallow offshore sediments is a primary line of evidence for corroborating the groundwater model that is currently lacking.

The scope of NW Natural's initial pre-design data gaps sampling scope proposes deploying six seepage meters for this purpose. NW Natural bases seepage meter locations on the availability of the equipment from the vendor (only six available); the range of groundwater flux made measured before HC&C system start-up; and the preliminary areas associated with sediment remedial technologies. This information is inadequate to support the goals of the proposed scope of work. NW Natural should provide information regarding how the seepage meter locations have been selected to demonstrate seepage control in shallow sediments, including but not limited to discussing the following:

a. The conclusion that the potential hydraulic divide occurs between shallow fine-grained sediments and the Upper Alluvium WBZ is based on data collected at piezometer clusters. Seepage meters are not placed near piezometers, so the piezometer data is unavailable for comparison. Consequently, the depth a potential hydraulic divide is not being assessed.
b. The nature and extent of low permeability materials in the river (fine-grained and/or impacted sediments) is a factor influencing seepage control. To the extent practicable given available information, seepage meters should be placed to assess seepage from locations representative of low permeability material. For example, a location where shallow sediments exhibit a high-percent levels of fines.

This information should be considered for locating seepage meters in the initial sampling plan, and should be carried forward during the planning of future pre-design data gaps work. The depth of a potential hydraulic divide, the nature of in-river sediments, and the extent of heavy MGP impacts are important factors for planning and designing the sediment remedy.

4. **Data Quality Objectives and QA/QC Sampling, page 5.** Data should be collected and reported in a manner that is compatible with the site-wide database for the Harbor. Analytical data results should be provided in an electronic format that is consistent with the data reporting rules established by the LWG for the Portland Harbor Remedial Investigation report.